

## REMARKS

Favorable reconsideration of this application is requested in view of the above amendments and the following remarks. Claims 6 and 13 have been canceled without prejudice to or disclaimer of the subject matter recited therein. Claims 1, 4, 7, 8, 11 are amended. The changes made to claims 4, 7, and 11 are editorial. The revisions to claims 1 and 8 are supported, for example, at page 6, lines 32-34 in the specification. The changes made to the claims by the current amendment are attached hereto in a page entitled, "Version with Markings to Show Changes Made."

New claims 15-22 have been added. Claims 15-18 are supported, for example, at Figure 3 and at page 10, lines 2-13 in the specification. Claims 19-20 are supported, for example, at Figure 1. Original claims 5 and 12, which the Examiner identified as being allowable, have been rewritten in independent form as claims 21 and 22. No new matter has been added.

Accordingly, claims 1-5, 7-12, and 14-22 are pending, with claims 1, 8, 21, and 22 being independent.

Claims 8-11 stand rejected as being anticipated by U.S. Patent No. 4,823,172 ("*Mihara*"). Claims 1-4, 6, 7, 13 and 14 stand rejected as obvious over this reference. Applicant respectfully traverses these rejections.

Independent claim 1 recites that a semiconductor body is made of silicon carbide and includes a first conductivity type semiconductor substrate and a first conductivity type epitaxial growth layer formed on the first conductivity type semiconductor substrate.

*Mihara* does not disclose or suggest at least these features of claim 1. *Mihara* is directed to a vertical MOSFET for suppressing latch-up. *Mihara* discloses that an n-type base layer 3 is formed on a P+ substrate 2 by epitaxial growth. See Figure 1 of *Mihara*. *Mihara* does not teach or suggest that the semiconductor body is formed of silicon carbide. Moreover, *Mihara* does not teach or suggest using a semiconductor body that includes a first conductivity type semiconductor substrate and a first conductivity type epitaxial growth layer formed on the first conductivity type semiconductor substrate. Instead, *Mihara* teaches away from using the same conductivity type for the substrate because it increases the resistance of the epitaxial layer to an undesired level. See column 1, lines 60-66 of *Mihara*. Applicant therefore submits that claim 1 is allowable over the cited reference.

Independent claim 8 also recites that a semiconductor body is made of silicon carbide and includes a first conductivity type semiconductor substrate and a first conductivity type epitaxial growth layer formed on the first conductivity type semiconductor substrate. Accordingly, independent claim 8 is believed allowable for the same reasons discussed above with respect to claim 1.

Claims 2-5, 7, and 9-12 depend from claims 1 and 8. Moreover, each of these dependent claims recites additional features in combination with the features of its respective base claim, and is believed allowable in its own right. Individual consideration of the dependent claims is respectfully requested.

New claims 15-20 depend from claims 1 and 8, and are also believed allowable for the reasons discussed above with respect to claims 1 and 8.

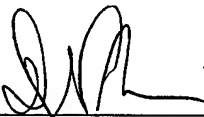
Moreover, claims 15-18 are even further removed from the cited reference. For example, each of claims 15-18 recites the features of a channel extending along the thickness direction of the semiconductor body in the second conductivity type semiconductor and a surface of the recess is covered with an insulating film. *Mihara* does not disclose or suggest these features.

In view of the above, favorable reconsideration in the form of a notice of allowance is requested.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**In the Claims**

Claims 1, 4, 7, 8, and 11 have been amended as follows:

1. (Amended) A semiconductor element comprising:

a field-effect transistor including a source electrode provided on a first surface side of a semiconductor body, a drain electrode provided on a second surface side opposite to the first surface side, a first conductivity type semiconductor that includes a first conductivity type drift region and is included in the semiconductor body, and a second conductivity type semiconductor included in the semiconductor body; and

a Schottky diode formed by contact between the first conductivity type semiconductor and a metal electrode,

wherein the semiconductor body is made of silicon carbide and includes a first conductivity type semiconductor substrate and a first conductivity type epitaxial growth layer formed on the first conductivity type semiconductor substrate,

wherein the field-effect transistor and the Schottky diode are arranged such that a first depletion layer stemming from the Schottky diode is superimposed on a second depletion layer spreading around the second conductivity type semiconductor in an off-state of the field-effect transistor.

4. (Amended) The semiconductor element according to claim 1, wherein the field-effect transistor is an insulated gate field-effect transistor,

the insulated gate field-effect transistor further comprising:

a first conductivity type source region formed in the second conductivity type semiconductor, a recess that penetrates the source region and the second conductivity type semiconductor to reach the first conductivity type drift region, and a gate electrode on the insulating film formed in the recess,

wherein in the insulated gate field-effect [transistors] transistor,

the second conductivity type semiconductor is provided on the first surface side; and

the source electrode is provided so as to be in contact with the second conductivity type semiconductor and the source region,

wherein the Schottky diode is formed by contact between the drift region in contact with the recess and the metal electrode.

7. (Amended) The semiconductor element according to claim [6] 1, wherein the silicon carbide is obtained by causing epitaxial growth on a surface of a silicon carbide substrate that is either one of the following I and II to form a silicon carbide layer:

I. (111) Si plane of  $\beta$ -SiC, (0001) Si plane of 6H or 4H-SiC, or Si plane of 15R-SiC, or offcut planes within 10 degrees of these Si planes; and

II. (100) plane of  $\beta$ -SiC, (110) plane of  $\beta$ -SiC, (1-100) plane of 6H or 4H-SiC, (11-20) plane of 6H or 4H-SiC, or offcut planes within 15 degrees of these planes.

8. (Amended) A semiconductor element comprising:

a field-effect transistor including a source electrode provided on a first surface side of a semiconductor body, a drain electrode provided on a second surface side opposite to the first surface side, a first conductivity type semiconductor that includes a first conductivity type drift region and is included in the semiconductor body, and a second conductivity type semiconductor included in the semiconductor body; and

a Schottky diode formed by contact between the first conductivity type semiconductor and a metal electrode,

wherein the semiconductor body is made of silicon carbide and includes a first conductivity type semiconductor substrate and a first conductivity type epitaxial growth layer formed on the first conductivity type semiconductor substrate,

wherein the field-effect transistor and the Schottky diode are arranged closely so that a second conductivity type semiconductor other than said second conductivity type semiconductor is not interposed between the field effect transistor and the Schottky diode.

11. (Amended) The semiconductor element according to claim 8, wherein the field-effect transistor is an insulated gate field-effect transistor,

the insulated gate field-effect transistor further comprising:

a first conductivity type source region formed in the second conductivity type semiconductor, a recess that penetrates the source region and the second conductivity type semiconductor to reach the first conductivity type drift region, and a gate electrode on the insulating film formed in the recess,

wherein in the insulated gate field-effect [transistors] transistor,

the second conductivity type semiconductor is provided on the first surface side; and

the source electrode is provided so as to be in contact with the second conductivity type semiconductor and the source region,

wherein the Schottky diode is formed by contact between the drift region in contact with the recess and the metal electrode.

Claims 6 and 13 have been canceled.

Claims 15-22 have been added.